PATENT

Attorney's Docket No. 5175-135

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Conkle et al.
Serial No.: 09/701,760
Filed: April 19, 2001
For: *Method for Purification, Recovery, and Sporulation of Cysts and Oocysts*

Examiner: Rodney P. Swartz, Ph.D.
Art Unit 1645
Confirmation No. 8928

Date: February 14, 2005

Mail Stop Petition
Attn: Ms. Sherry Brinkley
Via Facsimile 571-273-0025
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR WITHDRAWAL FROM ISSUE PURSUANT TO 37 CFR 1.313 (c)(2)

Dear Sirs,

Applicants hereby petition for withdrawal of this application from issue. The issue fee for the above-mentioned patent application was paid in error on October 21, 2004. A copy of the Fee Transmittal dated October 21, 2004 and a copy of the notice of allowance and issue fee due are included with this petition.

Applicants submit good and sufficient reason for withdrawal from issue for consideration of the submission of a Request for Continued Examination (RCE) under CFR 1.114 with Information Disclosure Statement (IDS) as filed in the United States Patent and Trademark Office on August 20, 2004. A copy of the RCE with IDS as filed, along with copies of all references cited in the IDS and a copy of the receive-stamped return postcard are included with this petition. Applicants note that the RCE and accompanying IDS were filed prior to the erroneous payment of the issue fee.

Accordingly, Applicants respectfully request withdrawal of this application from issue and consideration of the RCE and IDS submitted on August 20, 2004.

The Commissioner is authorized to charge the specified $130.00 petition fee to Deposit Account No. 50-0220. Further, the Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,

Karen A. Magri
Registration No. 41,965

CERTIFICATION OF FACSIMILE TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the Office of Petitions at the United States Patent and Trademark Office via the facsimile number 571-273-0025 on February 14, 2005.

Sarah Brunmeier

Customer No. 20792
Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, North Carolina 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401

MYERS BIGEL SIBLEY & SAJOVEC, P.A.
Patent Attorneys
4140 Parklake Avenue, Suite 600, Raleigh, NC 27612

P.O. Box 37428
Raleigh, NC 27627
919-854-1400
Facsimile 919-854-1401

TELECOPIER TRANSMISSION COVER SHEET

Date: February 14, 2005

Application No. 09/701,760
Attorney Docket: 5175-135

Telecopier No.: 571-273-0025

To: Office of Petitions
Attn: Ms. Sherry Brinkley

Company: United States Patent and Trademark Office

From: Karen A. Magri, Esq.

FAX RECEIVED
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Number of Pages (Including Cover Sheet): 30 Return fax to: Sarah B.

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Our fax number is (919) 854-1401.

CERTIFICATION OF FACSIMILE TRANSMISSION
UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the Office of Petitions at the United States Patent and Trademark Office via the facsimile number 571-273-0025 on February 14, 2005.

Sarah Brunmeier

Sarah Brunmeier

Confidentiality Note

The information contained in this facsimile message is legally privileged and confidential information intended only for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby prohibited. If you have received this telecopy in error, please immediately notify us by telephone and return the original message to us at the address above via the United States Postal Service. THANK YOU.

PART B - FEE(S) TRANSMITTAL

COPY

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 07/23/2004

~~Paul H Ginsburg~~
~~Pfizer Inc~~
~~20th Floor~~
~~235 East 42nd Street~~
~~New York, NY 10017-5755~~

Scully, Scott, Murphy & Presser
400 Garden City Plaza, Suite 300
Garden City, New York 11530

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

Peter I. Bernstein	(Depositor's name)
	(Signature)
October 21, 2004	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,760	04/19/2001	Harold N. Cordle	PC10433A	6978

FAX RECEIVED

TITLE OF INVENTION: METHOD FOR THE PURIFICATION, RECOVERY, AND SPORULATION OF CYSTS AND OOCYSTS

FEB 14 2005

OFFICE OF PETITIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	~~$1330~~ $1370	$0	~~$1330~~ $1370	10/25/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
SWARTZ, RODNEY P	1645	424-093100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
   - ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
   - ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
   (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
   1 Scully, Scott,
   2 Murphy & Presser
   3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Pfizer, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): New York, NY

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ individual ☒ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):
- ☒ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 19-1013/SSP (enclose an extra copy of this form).

5. Change to Entity Status (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See e.g., 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

(Authorized Signature) Peter I. Bernstein (Date) October 21, 2004
Reg#43,497

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 07/23/2004

Paul H Ginsburg
Pfizer Inc
20th Floor
235 East 42nd Street
New York, NY 10017-5755

EXAMINER	
SWARTZ, RODNEY	
ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 07/23/2004

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,760	04/19/2001	Harold N. Conkle	PC10433A	8928

TITLE OF INVENTION: METHOD FOR THE PURIFICATION, RECOVERY, AND SPORULATION OF CYSTS AND OOCYSTS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$0	$1330	10/25/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

LDL T M

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 07/04) Approved for use through 04/30/2007.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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Alexandria, Virginia 22313-1450

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 07/23/2004

Paul H Ginsburg
Pfizer Inc
20th Floor
235 East 42nd Street
New York, NY 10017-5755

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(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,760	04/19/2001	Harold N. Conkle	PC10433A	3716

TITLE OF INVENTION: METHOD FOR THE PURIFICATION, RECOVERY, AND SPORULATION OF CYSTS AND OOCYSTS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$0	$1330	10/25/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
SWARTZ, RODNEY P	1645	424-093100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

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(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ❑ individual ❑ corporation or other private group entity ❑ government

4a. The following fee(s) are enclosed:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s):

❑ A check in the amount of the fee(s) is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is not claiming SMALL ENTITY status. See, e.g., 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

(Authorized Signature) (Date)

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,760	04/19/2001	Harold N. Conkle	PC10433A	8928

7590 07/23/2004

Paul H Ginsburg
Pfizer Inc
20th Floor
235 East 42nd Street
New York, NY 10017-5755

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EXAMINER	
SWARTZ, RODNEY P	
ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 07/23/2004

FAX RECEIVED

FEB 14 2005

OFFICE OF PETITIONS

Determination of Patent Term Extension under 35 U.S.C. 154 (b)
(application filed after June 7, 1995 but prior to May 29, 2000)

The Patent Term Extension is 0 day(s). Any patent to issue from the above-identified application will include an indication of the 0 day extension on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

PTOL-85 (Rev. 07/04) Approved for use through 04/30/2007.

Notice of Allowability	Application No. 09/701,760	Applicant(s) CONKLE ET AL	
	Examiner Rodney P. Swartz, Ph.D.	Art Unit 1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *25November2003*.
2. ☒ The allowed claim(s) is/are *1-39 and 41-53*.
3. ☒ The drawings filed on *19 April 2001* are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 2/2/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. Applicants' Response to Final Office Action, received 25November2003, is acknowledged. Claims 1, 7, 15, 22, 30, and 48 have been amended. Claim 40 has been cancelled. New claims 52 and 53 have been added.

2. Claims 1-39 and 41-53 are pending and under consideration.

Rejections Moot/Withdrawn

3. The rejection of claim 40 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, is moot in light of the cancellation of the claim.

4. The rejection of claims 15-17 under 35 U.S.C. 112, second paragraph, indefiniteness, is withdrawn in light of the amendment of the claims.

5. The rejection of claims 1-6, 28-39 under 35 U.S.C. 112, second paragraph, as being indefinite, is withdrawn in light of the amendment of the claims.

6. The rejection of claims 7-14 under 35 U.S.C. 112, second paragraph, as being indefinite, is withdrawn in light of the amendment of the claims.

7. The rejection of claims 18-27 and 41-51 under 35 U.S.C. 112, second paragraph, as being indefinite, is withdrawn in light of the amendment of the claims.

Conclusion

8. Claims 1-39 and 41-53 are free of the prior art of record and are allowable.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney P. Swartz, Ph.D., Art Unit 1645, whose telephone number is (571) 272-0865. The examiner can normally be reached on Monday through Thursday from 5:30 AM to 4:00 PM EST.

If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, Lynette F. Smith, can be reached on (571)272-0864.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney P Swartz

RODNEY P SWARTZ, PH.D
PRIMARY EXAMINER
Art Unit 1645

July 21, 2004

FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

LIST OF DOCUMENTS CITED BY APPLICANT

(Use several sheets if necessary)

Attorney Docket Number	Serial No.
5175.135	09/701,760

Applicants:
Conkle et al.

Filing Date	Group
April 19, 2001	1645

U. S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes | No
DRS	1.	RU2094121	10/27/97	Russia			Yes
	2.	RU2094121	10/27/97	Russia			No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

DRS	3.	Kotel'Nikov, G.A., "Diagnosis of Animal Helminthoses," *Moscow Kolos* 1-8, (1974). (English translation and Russian language document)

EXAMINER RPStewart DATE CONSIDERED 7-7-04

EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in

REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL

Subsection (b) of 35 U.S.C. § 132, effective on May 29, 2000, provides for continued examination of an utility or plant application filed on or after June 8, 1995.
See The American Inventors Protection Act of 1999 (AIPA).

Application Number	09/701,760
Filing Date	April 19, 2001
First Named Inventor	Conkle et al.
Group Art Unit	1645
Examiner Name	Rodney P. Swartz
Attorney Docket Number	5175-135

This is a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCE's (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 C.F.R. § 1.114

a. ☐ Previously submitted Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
   i. ☐ Consider the amendment(s)/reply under 37 C.F.R. § 1.116 previously filed on _____ (Any unentered amendment(s) referred to above will be entered).
   ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
   iii. ☐ Other _____
b. ☒ Enclosed
   i. ☐ Amendment/Request for Reconsideration
   ii. ☐ Affidavit(s)/Declaration(s)
   iii. ☒ Information Disclosure Statement (IDS), Form PTO-1449, and 2 references
   iv. ☐ Other _____

2. Miscellaneous

a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. § 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. § 1.17(i) required)
b. ☐ Other _____

3. Fees **The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.**

a. ☐ The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No.
   i. ☐ RCE fee required under 37 C.F.R. § 1.17(e)
   ii. ☐ Extension of time fee (37 C.F.R. § § 1.136 and 1.17)
   iii. ☐ Other _____
b. ☒ Check in the amount of **$ 770.00** enclosed
c. ☐ Payment by credit card (Form PTO-2038 enclosed)
d. ☒ If necessary, the Director is hereby authorized to charge any deficiencies, or credit any overpayments, to Deposit Account No. 50-0220

Myers Bigel Sibley & Sajovec, P.A., P. O. Box 37428, Raleigh, North Carolina 27627,
Telephone: (919) 854-1400, Facsimile: (919) 854-1401, Customer No. 20792

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Name (Print/Type)	Karen A. Magri	*Registration No. (Attorney/Agent)*	41,965
Signature	Karen A. Magri	*Date*	August 20, 2004

CERTIFICATE OF EXPRESS MAILING			
"Express Mail" mailing label number: EV472533328US Date of Deposit: August 20, 2004 I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.			
Name (Print/Type)	Sarah Brunmeier		
Signature	Sarah Brunmeier	*Date*	August 20, 2004

FORM PTO-1449 U.S. Department of Commerce
Patent and Trademark Office

LIST OF DOCUMENTS CITED BY APPLICANT

(Use several sheets if necessary)

A1 of A1

Attorney Docket Number	Serial No.
5175-135	09/701,760

COPY

Applicants: [redacted]nkle et al.

Filing Date:	Group:
April 19, 2004	1645

U. S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appro-priate

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes | No
	1.	RU2095409 C1		Russia			YES

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	2.	CHERVJAKOV et al., "Handbook, Veterinary Drugs," Moscow, Kolos. (1977) pp. 391-392. (With English Translation)

EXAMINER _____ DATE CONSIDERED _____

*EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Attorney's Docket No. 5175.135

PATENT

In re: Conkle et al.
Serial No.: 09/701,760
Filed: April 19, 2001
For: *Method for Purification, Recovery, and Sporulation of Cysts and Oocysts*

Examiner: Rodney P. Swartz, Ph.D.
Art Unit 1645
Confirmation No. 8928

Date: August 20, 2004

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Sir:

Attached is a list of documents on form PTO-1449 together with a copy of each identified document, and an English translation thereof. It is requested that these documents be considered by the Examiner and officially made of record in accordance with the provisions of 37 C.F.R. § 1.56 and Section 609 of the MPEP.

The Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 09-0461.

Respectfully submitted,

Karen Magri

Karen A. Magri
Registration No. 41,965

CERTIFICATE OF EXPRESS MAILING

"Express Mail" mailing label number: EV472533328US Date of Deposit: August 20, 2004
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Sarah Brunmeier

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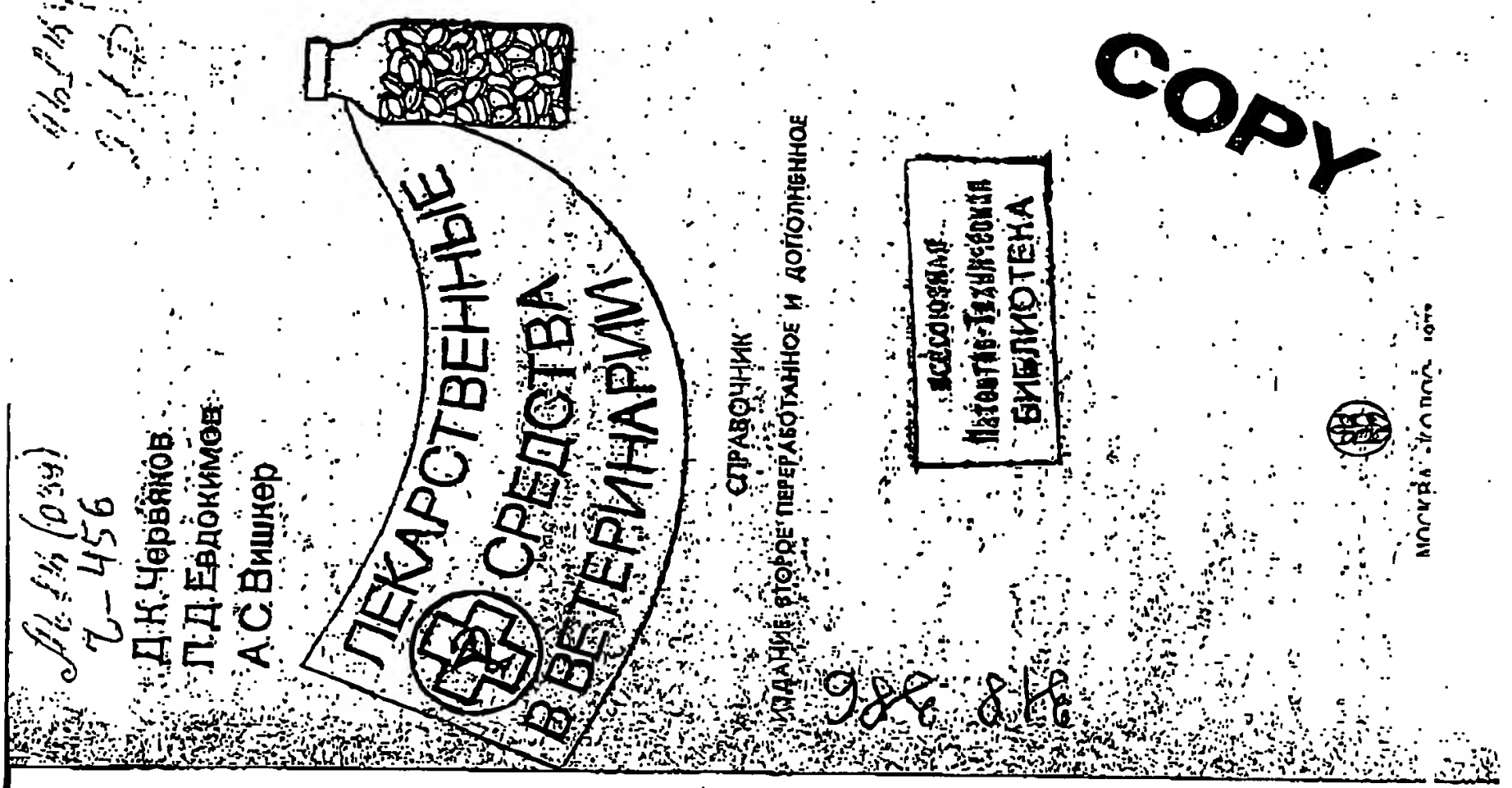
Facsimile: (919) 854-1401

[redacted]



[redacted]

НАФТАЛИН. NAPHTHALINUM

$C_{10}H_8$

Свойства. Бесцветные блестящие пластинки с характерным запахом и вкусом. В воде не растворяется, растворяется в спирте, хлорформе. В открытом виде постепенно улетучивается. Получается из каменноугольного дегтя путем дробной перегонки. Хранят в закрытых банках и в плотных бумажных пакетах.

Действие и применение. Обладает небольшим антимикробным и противопаразитарным действием. Оказывает слабое репеллентное действие на насекомых. В связи с ядовитостью для животных и малой растворимостью в воде применение его ограничено.

Применяют летом в форме мази, присыпок как антисептическое, отпугивающее насекомых средство при ранах кожи, в том числе после кастрации животных.

В виде препарата дезинсектталина — Desinsectalinum (смесь нафталина и 60% угля с примесью нейтральных углеводородов) пользуют против вшей и клещей — переносчиков гемоспоридий.

АВТОЛ. AUTOLUM

Синонимы: машинное масло.

Свойства. Тягучая, маслообразная темно-бурая масса. Нерастворим в воде. Смешивается с жирами и маслами. Обладает антикоррозийными свойствами. Температура застывания минус 35—40°. Получается из дистиллятных и остаточных фракций нефти. Хранят в бочках и жестяных банках.

Действие и применение. Действует антисептически и противовоспалительно. Применяют как основу при изготовлении мазей, используемых при чесотке, гиподерматозе, стригущем лишае и других кожных заболеваниях.

Официнальная мазь: автоловая. Unguentum Autoli.

Состоит: автола 85 частей, стеарина 12 частей, окиси цинка 3 части; автола 85 частей, стеарина 7, парафина 3 и свиного сала 5 частей. Густая масса бурого-желтого или шоколадного цвета без запаха.

Выпускают в упаковке по 20 и 30 г. Применяют для лечения ожогов, пролежней, дерматитов, а также используют как основу для приготовления других мазей. Наносят на кожу 1—2 раза в день с повязку или без нее.

Полимерол. Polymerolum. Полимеризованное автоловое масло. Тягучая жидкость темно-бурого цвета. Нерастворим в воде, растворим в бензине, хлороформе. Применяют наружно при пиодермиях, ожогах, пролежнях и других заболеваниях кожи, один раз в сутки в виде повязок, смоченных в полимероле; и другие

2. ВЕЩЕСТВА, ОТДАЮЩИЕ КИСЛОРОД

КАЛИЯ ПЕРМАНГАНАТ. KALII PERMANGANAS

Калий марганцовокислый, $KMnO_4$

Свойства. Темно-красно-фиолетовые кристаллы или мелкий кристаллический порошок с металлическим блеском. Растворим в воде (в холодной в 1:3,5 в кипящей). Водные растворы от розового до пурпурового цвета. Несовместим с легко окисляющимися и органическими веществами (гликозиды, алкалоиды, дубильные вещества, соляные соли, серу, растительные слизи, белки, спирт и фосфор); при растирании может произойти взрыв. Является сильным окислителем. Хранят в хорошо закупоренных банках или в запаянных жестянках.

действие. В водных растворах при взаимодействии с органическими веществами разлагается с образованием свободного кислорода и марганца. Кислород действует антимикробно и дезодорирующе, марганца в зависимости от концентрации проявляют вяжущее и раздражающее действие. Свежеприготовленные растворы действуют сильнее, чем растворы трехдневного хранения. 2—5%-ный раствор калия перманганата губительно действует на большинство вегетативных форм микробов. Дезинфицирующая сила его сильно понижается в присутствии органических веществ. В связи с вяжущим и противомикробным действием оказывает противовоспалительно и кровоостанавливающее. Окисляет и разрушает яд змей, фосфор, алкалоиды, морфин, аконитин и др.

Применение. В качестве антисептического и противовоспалительного средства применяют в виде промывания 0,1—0,2%-ным раствором при ангинах, ринитах, фарингитах, ларингитах. Назначают внутрь при воспалении пищевода, при энтеритах, функциональном расстройстве кишечника (0,1—0,2%-ный раствор), а также при отравлениях принимают внутрь опием, морфином, аконитином, фосфором (0,5—2%-ный раствор). Для профилактики желудочно-кишечных заболеваний раствор перманганата периодически выпаивают животным (0,01%-ный раствор). При перозе у птиц дают питье в 0,01%-ном разведении в течение 3—5 дней.

Калия перманганат применяют для дезинфекции рук (0,5—2%-ный раствор), обработки операционного поля (5%-ный раствор), промывания (0,1—0,5%-ный раствор). Его назначают при пиодермиях, фурункулах, дерматитах и некробациллезе в виде орошения 1—3%-ным раствором.

При веррукозном дерматите пораженное место в области путового сустава прокудривают порошком перманганата в смеси со стрептоцидом и накладывают повязку. Для первичной обработки и лечения поражений кожи кроликов применяют 0,2—0,5%-ный раствор.

Калия перманганат используют при дезинфекции и дезодорации вагонов, трюмов, холодских помещений для хранения мясных и молочных продуктов, а также столов на рынках, мясных палаток, прилавков, тары для мясных и рыбных продуктов (2—4%-ный горячий раствор). При укусах ядовитых жуков и змей орошают место укуса 5%-ным раствором, инфильтрируют под кожу вокруг места укуса 1%-ный раствор: мелким животным 2—5 мл, крупным 5—10 мл; при укусах змей одновременно рекомендуется вводить противозмеиную сыворотку. В акушерской практике при метритах, ватинитах и трихомонозе крупного рогатого скота назначают спринцевания 0,1%-ным раствором.

Пьют *внутрь* 0,1—0,2%-ного раствора: лошадям и крупному рогатому скоту 200—600 мл; мелким жвачным и свиньям 50—100 мл; телятам до одного года 50—100 мл.

РАСТВОР ПЕРЕКИСИ ВОДОРОДА КОНЦЕНТРИРОВАННЫЙ. SOLUTIO HYDROGENII PEROXYDI CONCENTRATA

H_2O_2

Синонимы: пергидроль, гиперол.

Свойства. Бесцветная прозрачная жидкость без запаха или со слабым своеобразным запахом, слабокислой реакции. Медленно разлагается при комнатной температуре, очень быстро — при нагревании. Препарат содержит 27,5—31% перекиси водорода. Несовместим с легко окисляющимися веществами, щелочами, солями серебра, фосфором. Хранят по списку Б в склянках со стеклянными пробками в прохладном, защищенном от света месте.

Для практических целей выпускают также раствор перекиси водорода — Solutio Hydrogenii peroxydi diluta, содержащий около 3% перекиси водорода. Это прозрачная бесцветная жидкость без запаха, имеющего вяжущего вкуса, слабокислой реакции. Для его приготовления 30 г пергидроля и доливают водой до 100 мл. Для практических целей выпускают и применяют данный раствор перекиси водорода.

Действие. При соприкосновении с органическими и другими легко окисляющимися веществами растворы перекиси водорода разлагаются с выделением кислорода. При этом 1 л 3%-ного раствора перекиси водорода образует до 10 л кислорода. Разложение перекиси водорода происходит под влиянием тканевых ферментов (пероксидазы и каталазы). В первом случае расщепление идет по пероксидазному типу ($H_2O_2 \rightarrow H_2O + O$), при этом выделяется активный атомарный кислород, а если по каталазному типу, то освобождается молекулярный кислород ($2H_2O_2 \rightarrow 2H_2O + O_2$). Образующийся атомарный кислород как окислитель действует антимикробно и дезодорирующе. Выделяющийся кислород образует мельчайшие пузырьки, которые механически способствуют очищению раны от загрязнений и омертвевших тканей.

Перекись водорода оказывает небольшое вяжущее и кровоостанавливающее влияние. Как сильный окислитель, окисляет яд змеиных укусов. По силе антимикробного действия 3%-ный раствор перекиси водорода соответствует 0,1%-ному раствору сулемы и 5%-ному раствору карболовой кислоты. Перекись водорода устраняет гнилостный запах, уменьшает кровоточивость и ускоряет заживление ран.

Применение. В качестве дезинфицирующего и дезодорирующего средства применяют для промываний и полосканий при ангинах, заболеваниях слизистых оболочек полости рта, глотки, при гингивитических болезнях, кровоточивости из слизистых оболочек (1—2%-ный раствор). Для промывания гнойных ран, язв, полостей, а также при воспалении наружного уха (3%-ный раствор). Используют для смазывания прилипших повязок.

При укусах ядовитых змей и пауков тампонируют пергидролем, вводят подкожно вокруг места укуса 3%-ный раствор перекиси водорода (мелким животным 1—5 мл).

Для дезинфекции птичников применяют 3%-ный раствор перекиси водорода с 0,5% молочной кислоты. Для приготовления данного раствора берут 1 часть пергидроля и 9 частей воды, а затем добавляют 0,5% молочной кислоты. 3%-ный раствор перекиси водорода используют для обеззараживания шприцев-катетеров, применяемых при искусственном осеменении, с последующим промыванием их изотоническим раствором хлорида натрия. Для дезинфекции ульев при американском и европейском гнильце пчел применяют 10%-ный раствор перекиси водорода, 3%-ным раствором уксусной или муравьиной кислоты при трехкратной панесении из расчета 1 л на 1 м² площади с часовым интервалом. Дезинфекцию снецодежды рабочих на пасеках проводят не реже одного раза в месяц путем погружения в 2%-ный раствор перекиси водорода на 1 часа или в камере парами формальдегида.

ГИДРОПЕРИТ В ТАБЛЕТКАХ. TABULETTAE HUDROPERITI

Свойства. Таблетки, содержащие комплексное соединение перекиси водорода с мочевиной. Перекиси водорода содержится 33—35%. Таблетки белого цвета. Хорошо растворимы в воде. Хранят в стеклянной упаковке в сухом, защищенном от света месте.

Действие и применение. Одна таблетка гидроперита, растворенная в 15 мл воды, соответствует 3%-ному раствору перекиси водорода

...ют в качестве антисептического и дезодорирующего средства ...ительных заболеваниях слизистых оболочек рта, горла, при ...ческих заболеваниях, а также для промывания ран и полостей ...1%-ный раствор перекиси водорода). Для получения 0,5%-ного ...ра перекиси водорода одну таблетку растворяют в 100 мл воды.

3. ГРУППА ФОРМАЛЬДЕГИДА

РАСТВОР ФОРМАЛЬДЕГИДА. SOLUTIO FORMALDEHYDI

ФОРМАЛИН. FORMALINUM

40%-ный водный раствор формальдегида, HCOH

...Свойства. Прозрачная бесцветная жидкость со своеобразным ост...раздражающим запахом. Хорошо смешивается с водой во всех со...ениях. При хранении в прохладном месте мутнеет и обра...ет осадки, растворяющиеся при нагревании. Для предотвращения ...ризации к формалину добавляют метиловый спирт (10—12%). ...местны с окислителями, фенолом, камфорой, ментолом, тимолом. ...Хранят в хорошо закупоренных бутылях в темном месте при темпе...туре ниже 9°. Бутылки помещают в корзины и обкладывают вокруг ...ками или другим упаковочным материалом.

...Действие. Формальдегид хорошо реагирует со многими вещест...ами, в том числе с белками. Действует раздражающе, прижигающе, ...кробно, противопаразитарно, дезодорирующе и подсушивающе. ...бает неспорообразующие микроорганизмы, споровые формы анаэро...ы, вирусы и грибы. Споры антракса при воздействии теплого (30°) ...ого раствора формальдегида погибают в течение трех часов. Гу...льно влияет на чесоточных клещей, мух, их личинок и других пара...ов. Повышение температуры и относительной влажности в помеще...увеличивает антимикробную активность препарата. В основе ан...робного действия лежит взаимодействие формальдегида с прото...ой и отнятие кислорода от белковых соединений, коагуляция и ...ертвение белка бактериальной клетки. При температуре ниже 0° фор...дегид не оказывает губительного действия на микробы.

Формалин уплотняет и высушивает кожу, а при частом применении ...становится сухой, ломкой и развивается экзема. Водные растворы ...ляют после применения внутрь действуют антисептически и проти...одильно, а в случаях приема внутрь концентрированных растворов ...вается гастроэнтерит.

...Применение. Используют как одно из самых универсальных и луч...средств для дезинфекции животноводческих помещений. Можно ...енять в водных растворах, в газообразном состоянии, в виде аэрозо...ей в чистом виде, так и в смеси с другими химическими средствами. ...я дезинфекции помещений при ящуре, болезни Ауески, пастереллезе, ...при инфекционном вагините, паратифе свиней, чуме свиней, оспе ...ы лошадей — 2%-ный, при сибирской язве — 4%-ный раствор. ...очной раствор формальдегида рекомендуют для дезинфекции при ...томлезах (1% едкого натра и 2% формальдегида), при туберку...е птиц (3% едкого натра и 3% формальдегида). Дезинфекция произ...ят при температуре 25—30°.

Формальдегид применяют для газовой дезинфекции герметических ...ытых помещений, тары и инвентаря. Для этого в металлическую или ...форовую посуду наливают 45 весовых частей формалина (40% фор...дегида) и 22 части воды, а затем добавляют 30 частей калия марган...

[handwritten] [illegible] (039)

[illegible] – 456

[illegible]

[illegible]

D. K. Chervjakov
P. D. Evdokimov
A. S. Vishker

Veterinary Drugs

Handbook

Second Revised and Supplemented Edition

[handwritten] 986 816

[illegible] 1977

NAPHTHALENE, NAPHTHALINUM

$C_{20}H_5$

Properties. Colorless, lustrous laminae with characteristic odor and taste. Insoluble in water, soluble in alcohol, ether, chloroform. Gradually volatilizes when exposed. [Illegible] from coal tar by [Illegible] distillation. Stored in closed containers and in tight paper packages.

Action and use. Possesses a slight antimicrobial and antiparasite effect. Has a weak repellent effect on insects. In conjunction with toxicity for animals and insolubility in water its use is limited.

Used in the summer in the form of powder as anti [illegible] that repels insects on skin, including castration of animals.

In the form of the preparation desinsectalin – Desinsectalinum (mixture of naphthalene in 60% carbon with an admixture of neutral hydrocarbons) used against lice and mites-carriers of hemosporidiosis.

AUTOL. AUTOLUM

Synonym: machine oil

Properties. Viscous, salve-like dark brown mass. Insoluble in water. Miscible with fats and oils. Possesses anticorrosion properties. Solidification point 35-40°. Produced from petroleum distillates and residues. Stored in drums and iron cans.

Action and use. As an antiseptic effect and acts against [illegible]. Used as a base for production and salves, used in mange, hypodermatosis, ringworm and other skin diseases.

Officinal autol salve. Unguentum Autoli. Consists of 85 parts autol, 12 parts stearin, 3 parts zinc oxide; 85 parts autol, 7 parts stearin, 3 parts paraffin and 5 parts suet [illegible] brownish-yellow mass or chocolate-colored odorless mass.

Produced in a 20 and 30 g package. Used to treat [illegible], burns, ulcers, dermatitis and also used [illegible] to prepare other salves. Applied to the skin one to two times in a bandage or without one.

Polymerol. Polymerolum. Polymerized autol. Viscous dark brown liquid. Insoluble in water, soluble in solvent naphtha, chloroform. Used externally in pyodermas, burns, ulcers and other diseases of the skin. [Illegible] once a day in the form of bandages moistened in polymerol and [illegible].

2. SUBSTANCES THAT RELEASE OXYGEN

POTASSIUM PERMANGANATE, KALII PERMANGANAS

Potassium permanganate, $KMnO_4$

Properties. Dark red violet crystals or fine [illegible] powder with metallic luster. Soluble in water [illegible] cold and 1:3.5 m boiling water). Aqueous solutions are reddish to purple in color. Incompatible with readily oxidizing and [illegible] substances (glycosides, alkaloids, tannins. [illegible] salts, sulfur, plant mucilages, proteins, alcohol and phosphorus) [illegible] can explode. Is a strong oxidizer. [Illegible] in well-sealed containers or in sealed tins.

Action. In aqueous solutions during reaction with organic substances it decomposes to form free oxygen and manganese salts. Oxygen has an antimicrobial and deodorizing effect. Manganese, depending on concentration, exhibits an astringent and irritating effect. Freshly prepared solutions act [illegible] and solutions stored for 3 days. A 2-5% solution of potassium permanganate has a destructive effect on most vegetative forms of bacteria. Its disinfecting power is strongly reduced in the presence of [illegible] substances. In conjunction with the astringent and antimicrobial effect it has an anti-inflammatory and styptic effect. Oxidizes and [illegible] venom of snakes, phosphorus, alkaloids, morphine, aconitine, etc.

Use. As an antiseptic and anti-inflammatory agent is used in the form of washing with 0.1-0.2% solution in stomatitis, rhinitis, pharyngitis, laryngitis. Is used in [illegible] of the esophagus, in enteritis, functional disorders of the intestines (0.1-0.2% solution) and also in intoxication [illegible] internally with opium, morphine, aconitine, phosphorus (0.5-2% solution). For prevention of gastrointestinal diseases a solution of potassium permanganate is periodically furnished to the animal (0.01% solution). During perosis in birds a drink which is administered with 0.01% dilution for 2 to 4 days.

Potassium permanganate is used for disinfection of hands (0.5-2% solution), treatment of the operating field (5% solution), washing (0.1-0.5% solution). It is prescribed in pyodermas, furunculosis, dermatitis and necrobacillosis in the form of a spray with 1-3% solution.

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*** RX REPORT ***
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INCOMPLETE RECEPTION

TX/RX NO	8021	
RECIPIENT ADDRESS	919 854 1401	
DESTINATION ID		
ST. TIME	02/14 14:43	
TIME USE	15'49	
PGS.	20	
RESULT	NG	##0793

In verrucose dermatitis the damaged site in the region of [illegible] is sprinkled with permanganate powder in a mixture with streptocide and wrapped in a bandage. For primary treatments and treatment of skin damage [illegible] a 0.2-0.5% solution is used.

Potassium permanganate is used in disinfection and deodorizing [illegible], storerooms for storage of meat and dairy products and also tables in markets, meat stands, counters, packages of meat and fish products (2-4% hot solution). In bites of toxic beetles and snakes, the location of the bite is sprayed with 5% solution [illegible] around the location of the bite 1% solution: small [illegible] 2-5 mL, large 5-10 mL; in snake bite it is simultaneously recommended that anti-snake serum be administered. In obstetric practice in metritis, vaginitis and trichomoniasis in large cattle spraying with a 0.1% solution is prescribed.

Doses internally 0.1-0.2% solution; horses and large cattle 200-600 mL; small ruminants and pigs 50-100 mL; [illegible] to 1 year 50-100 mL.

CONCENTRATED POTASSIUM HYDROXIDE SOLUTION.
SOLUTIO HYDROGENII PEROXYDI CONCENTRATA
H_2O_2
Synonyms: perhydrol, hyperol.

Properties: colorless transparent liquid without odor or with a weak intrinsic odor, weakly acid reaction. Slowly decomposes at room temperature, very rapidly when heated. The preparation contains 27.5-31% hydrogen peroxide. Incompatible with readily oxidizing substances, alkalis, silver salts. phosphorus. [Illegible] in glass vessels with glass stoppers in a cool location protected from light.

[Page 3]

For practical purposes a solution of hydrogen peroxide is also available – Solutio Hydrogenii peroxydi diluta containing about [illegible] hydrogen peroxide. This transparent colorless odorless liquid has an astringent taste, weakly acid reaction. For preparation [illegible] 10 g perhydrol and water added to 100 mL. For practical purposes this hydrogen peroxide is prescribed and used.

Action. On contact with organic and other oxidizing substances, potassium hydroxide solutions decomposes with liberation of oxygen. One liter of 3% hydrogen peroxide solution forms up to 10 L of oxygen. Decomposition of hydrogen peroxide occurs under the influence of tissue enzymes (peroxidases and catalases), cleavage occurs according to the peroxidase type ($H_2O_2 \rightarrow H_2O + O$), active atomic oxygen is formed, and if according to the catalase [illegible] molecular oxygen is liberated ($2H_2O_2 \rightarrow 2H_2O + O_2$). The formed atomic oxygen as an oxidizer has an antimicrobial or deodorizing effect. The liberated oxygen forms fine bubbles that mechanically promote cleaning of a wound from [illegible] and dead tissue.

Hydrogen peroxide has a slight astringent and styptic effect. As a strong oxidizer it oxidizes toxins of snakes and [illegible]. According to the strength of the antimicrobial effect a 3% solution of hydrogen peroxides corresponding to a 0.1% solution of corrosive sublimate, 5% solution of carbolic acid. Hydrogen peroxide eliminates putrid odors, reduces blood flow and accelerates healing of wounds.

Use. As a disinfectant and deodorizing agent it is used for washing and rinsing in inflammatory diseases of the oral mucosa, throat, in gynecological diseases, hemorrhage from mucous membranes (1-2% solution), for washing of festering wounds, ulcers, cavities and also inflammation of the external ear (3% solution). Used for [illegible] bandages.

In bites of poisonous snakes and beetles perhydrol is introduced subcutaneously around the location of the bite with a 3% hydrogen peroxide solution (small animals 1-5 mL).

For disinfection of poultry coops 3% perhydrol solution is used with 0.5% lactic acid. For preparation of the solution 1 part perhydrol and 9 parts water and then 0.5% lactic acid is added, a 3% hydrogen peroxide solution is used to sterilize syringes-catheters used in artificial [illegible] with subsequent washing with isotonic sodium chloride solution. For disinfection [illegible] 10% hydrogen peroxide solution and 3% acetic acid solution or formic acid solution is used with three-fold application of 1 liter per 1 m^2 of area at hourly intervals. Disinfection of special clothing of workers in apiaries is carried out no less than once a month by immersion in 2% hydrogen peroxide solution for an hour or in a chamber with formaldehyde vapors.

HYDROPERITE IN TABLETS. TABULETTAE HUDROPERIT

Properties. Tablets containing a complex compound of hydrogen peroxide with urea. Hydrogen peroxide is contained 33 to 35% [illegible] white color. Readily soluble in water. Stored in standard package in a dry location protected from light.

Action and use. One tablet of hydroperite dissolved in 15 mL of water corresponds to a 3% solution of hydrogen peroxide. It is used as an antiseptic and deodorizing agent in inflammatory diseases of the mucosa of the mouth, throat, in [illegible] diseases, and also for washing of wounds and cavities (0.5-1% solution of hydrogen peroxide). To prepare a 0.5% hydrogen peroxide solution, one tablet is dissolved in 100 mL of water.

3. FORMALDEHYDE GROUP

FORMALDEHYDE SOLUTION. SOLUTIO FORMALDEHYDI
FORMALIN. FORMALINUM

10% aqueous solution of formaldehyde, HCOH.

Properties. Transparent, colorless liquid with a peculiar [illegible] irritating odor. Readily miscible with water in all ratios. When stored in a cool location sometimes becomes turbid and forms precipitates that dissolve when heated. To prevent polymerization methyl alcohol (10-12%) is added to formalin. Compatible with oxidizers, phenol, camphor, menthol. thymol. Stored in well-sealed bottles in a dark location at a temperature no lower than 9°. The bottles are placed in baskets and wrapped [illegible] or other packaging material.

Action. Formaldehyde reacts readily with many substances. including proteins. Has an irritating, [illegible], antiparasitic, deodorizing and desiccant effect. [Illegible] nonsporulating microorganisms, spore forms of micro[illegible], viruses and fungi. Anthrax spores on exposure to a hot (30°) formaldehyde solution are killed within 3 hours. Has a destructive effect on mites, flies, their larvae and other parasites. An increase in temperature and relative humidity in rooms increases the antimicrobial activity of the preparation. Reaction of formaldehyde with protoplasm and removal of oxygen from protein compounds, coagulation and denaturation of proteins of the bacterial cell underlie the antimicrobial effect. At a temperature below 0° formaldehyde has no destructive effect on microbes.

Formalin tightens and dries the skin and during frequent use the skin becomes dry, fragile and eczema develops. Aqueous solutions of formalin after use internally have an antiseptic and anti[illegible] effect and in cases of internal use of concentrated solutions gastroenteritis develops.

Use. Used as one of the most universal and best agents for disinfection of animal-keeping rooms. Can be used in aqueous solutions, in the gaseous state, in the form of aerosols and in pure form, also mixed with other chemical agents. For disinfection of rooms during foot-and-mouth disease, pseudorabies, pasteurellosis in pigs, pullorosis in birds 1% formaldehyde solution is used. In infectious vaginitis, paratyphus of pigs. [illegible] of horses 2%, in anthrax 4% solution. [Illegible] formaldehyde solution is recommended for disinfection in [illegible] (1% sodium iodide and 2% formaldehyde) in tuberculosis of birds (3% sodium iodide and 3% formaldehyde). Disinfection is carried out at a temperature of 25-30°.

- Formaldehyde is used for gas disinfection of hermetically sealed rooms, containers and inventories. For this purpose 45 parts by weight formalin (40% formaldehyde) and 22 parts water are poured into a metal or [illegible] vessel and then 30 parts potassium [illegible] are added ... [end of furnished text].

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ПО ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ

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(54) СПОСОБ ИЗГОТОВЛЕНИЯ ВАКЦИНЫ ПРОТИВ СИБИРСКОЙ ЯЗВЫ ЖИВОТНЫХ

Использование: биотехнология, микробиология, вакцина против сибирской язвы животных. Сущность изобретения: культивирование вакцинного штамма 5-ВНИИВВиМ осуществляют в жидкой споруляционно-ростовой среде, содержащей дрожжевой экстракт, пептон, калий фосфорнокислый двузамещенный, кальций хлористый, цинк сернокислый, медь сернокислую, железо сернокислое, аммоний сернокислый и воду (pH 7,2 ±0,2). При этом культивирование штамма осуществляют в реакторе в течение 23 - 25 ч, из них первые 17 - 19 ч при аэрации, поддерживая скорость растворения кислорода в среде 5,5±0,2 ммоль на 1 л среды в час. Для концентрирования спор используют натриевую соль карбоксиметилцеллюлозы, которую вносят в суспензию до концентрации 0,2 - 0,3%, а отстаивание осуществляют при температуре 0 - 25°C в течение 23 - 25 ч.-2 з.п. ф-лы.

Изобретение относится к области микробиологии, в частности к биотехнологии вакцинных препаратов, и может быть использовано при изготовлении вакцины против сибирской язвы.

Для изготовления вакцины против сибирской язвы животных используют способ культивирования бактерий вида B.anthracis в бутылях-четвертях на плотной питательной споруляционной среде, содержащей в качестве основного компонента гидролизат кормовых дрожжей [1]

Недостатком данного способа является длительность процесса культивирования штамма B. anthracis (72 82 ч), а также трудоемкость, так как наработка спорового материала производится в бутылях-четвертях.

Наиболее близким техническим решением, выбранным в качестве прототипа, является способ культивирования штамма 55-ВНИИВВиМ в жидкой питательной среде с использованием в качестве источника азота кислотного гидролизата говяжьего мяса. Способ позволяет за 48 ч получить споровый материал, содержащий 100 300 млн. жизнеспособных спор штамма 55-ВНИИВВиМ [2]

Основные недостатки этого способа заключаются в небольшом выходе спорового материала с 1 $см^3$ питательной среды (100 300 млн. спор в 1 $см^3$), в использовании в среде культивирования мяса, ценного продукта питания человека, а также в длительности процесса выращивания культуры и получения спор (2 сут).

вещества полиэтиленимина (...св. N 1792969, кл. C 12 N 1/02, авторы ...сулов И.А и др.). Он позволяет проводить концентрирование ...ктериальных спор в суспензии за 4 5 су..

Основные недостатки этого способа заключается в длительности процесса концентрирования (4 5 сут), а также в образовании прочных конгломератов спор при отстаивании, которые трудно ресуспендировать. Наличие конгломератов спор в вакцине недопустимо.

Целью настоящего изобретения является увеличение выхода количества спор с единицы питательной среды, сокращение трудоемкости способа, материальных затрат и времени на получение и концентрирование спорового материала для изготовления вакцины.

Цель достигается тем, что в предлагаемом способе изготовления вакцины против сибирской язвы культивирование осуществляют в реакторе с использованием разработанной нами и апробированной при производстве вакцины жидкой споруляционно-ростовой среды следующего состава (мас.):

Дрожжевой экстракт сухой 0,2 0,3

Пептон ферментативный сухой 0,2 0,3

Калий фосфорнокислый двузамещенный 0,04 0,06

Кальций хлористый 0,004 0,006

Магний сернокислый 0,03 0,05

Цинк сернокислый 0,0005 0,0015

Медь сернокислая 0,0005 0,0015

Железо сернокислое 0,00005 0,00015

Аммоний сернокислый 0,15 0,25

Вода деминерализованная (pH 7,2±0,2) Остальное

Кроме того, используют иные условия культивирования. В первые 18 ч культуру штамма 55-ВНИИВВиМ аэрируют воздухом путем барботирования, уровень аэрации составляет 5,3 5,7 ммолей растворенного кислорода на 1 л среды в 1 ч, при этом 95 100% выросших бактериальных клеток образуют споры. Затем аэрирование прекращают и культуру выдерживают 6 ч до завершения спорообразования и полного лизиса вегетативного материала.

Сокращение времени на концентрирование спорового материала достигается использованием в качестве вспомогательного вещества натриевой соли: карбоксиметилцеллюлозы (Na КМЦ) в оптимальной концентрации 0,2 0,3% Кроме того, осаждение спор осуществляют непосредственно в реакторе при температуре 0 25°С в течение 23 25 ч.

Способ культивирования разработан на 5-литровом ферментере "Бромма" (фирма ЛКБ Швеция) и воспроизведен в 250-литровом реакторе. Указанный способ может быть осуществлен в сосудах для культивирования различного объема. Для этого необходимо определить массообменные по кислороду характеристики используемых сосудов. Это можно выполнить с помощью сульфитного метода.

Пример 1. Определение массообмена по кислороду в 250-литровом реакторе, выращивание культуры штамма 55-ВНИИВВиМ и получение спор.

В 250-литровом реакторе, содержащем 160 л дистиллированной воды, по усовершенствованному сульфитному методу определяют скорость растворения кислорода (ммолей O_2 в час) при подаче воздуха через барботер в реакторе в количестве 2,5 дм^3/л воды в мин или 40 дм^3/160 л воды в мин (1-е измерение); 5 дм^3/л воды в мин или 80 дм^3/160 л в мин (2-е измерение) и 7,5 дм^3/л воды в мин или 120 дм^3/160 л воды в мин (3-е измерение).

зависимость уровня аэрации (в ммолей O_2/л в час) от скорости подачи воздуха в реактор (дм^3/л в мин).

Выращивание культуры штамма 55-ВНИИВВиМ и получение спор.

В реакторе (250 л) приготавливают 150 л споруляционно-ростовой среды по прописи (см. выше). Реактивы растворяют в той же последовательности, в которой они написаны. Устанавливают pH среды 7,2±0,2 добавлением 25%-ного раствора гидроокиси калия или натрия. Среду стерилизуют при 134°С в течение 1 ч и охлаждают до 30 35°С.

В реактор с питательной средой заливают через пробоотборник посевной материал, споровую суспензию штамма 55-ВНИИВВиМ, в количестве 1,5 - 3,0•10^{12} жизнеспособных спор, что составляет 1 2•10^7 спор на см^3 среды. Весь посевной материал должен содержаться в объеме 2 5 л.

Устанавливают температуру инкубирования 37°С, в засеянную питательную среду подают сжатый воздух через барботер. Скорость подачи воздуха определяют по графику массообмена. Она должна обеспечивать уровень аэрации 5,5 ммолей O_2/л в час. Культивируют 18 ч. Следующие 6 ч инкубируют без аэрации.

Культура вакцинного штамма 55-ВНИИВВиМ, выращенная в этих условиях, состоит из зрелых жизнеспособных спор, количество которых в 1 см^3 составляет 350 500 млн.

Повышение уровня аэрации выше 5,7 ммолей O_2/л в час отрицательно влияет на рост и спорообразование культуры штамма 55-ВНИИВВиМ: "урожай" спор с 1 см^3 питательной среды снижается на 30 40% спорообразование происходит лишь у 70 80% выросших вегетативных клеток.

Снижение уровня аэрации ниже 5,3 ммолей O_2/л в час вызывает резкое уменьшение процента спорообразования. Спорулируют лишь 50 60% вегетативных клеток. Выход спор с 1 см^3 питательной среды уменьшается на 45 50%

Пример 2. Осаждение спор в культуре вакцинного сибиреязвенного штамма 55-ВНИИВВиМ непосредственно в реакторе.

В реактор, содержащий 160 л споровой культуры штамма 55-ВНИИВВиМ с концентрацией спор 350 500 млн./см^3, заливают через пробоотборник 16 л 2%-ного раствора Na КМЦ, простерилизованного при 121°С в течение 1 ч и охлажденного до 40 50°С. Содержимое реактора перемешивают и оставляют в состоянии покоя на 20 24 ч. По истечении этого времени надосадок осторожно декантируют, а осадок тщательно перемешивают и сливают в отдельный сосуд, например 20-литровую стеклянную бутыль. Осадок в количестве 10 15 л содержит 4 6 млрд. жизнеспособных спор/см^3, легко ресуспендируется и его используют для изготовления вакцины против сибирской язвы животных. В этих условиях происходит 10-15-кратное концентрирование спорового материала.

При добавлении в споровую культуру Na КМЦ в конечной концентрации более 0,2% скорость осаждения спор не увеличивается.

При добавлении в споровую культуру Na КМЦ в количестве 0,10 0,15% осаждение спор происходит медленно в течение 10 12 сут. Изменение температуры от 0 до 25°С не влияет на скорость осаждения спор.

К суперконцентрированному споровому материалу добавляют глицерин до конечной концентрации 30% Полученную в результате жидкую суперконцентрированную вакцину из штамма 55-ВНИИВВиМ с содержанием 50 300 доз в объеме 1 5 мл разливают в ампулы и отпаивают без вакуума.

Использование предлагаемого способа изготовления вакцины из штамма 55-ВНИИВВиМ по сравнению с существующими способами обеспечивает следующие преимущества:

позволяет изготавливать в реакторах большие объемы спор штамма 55-ВНИИВВиМ и концентрировать их, соблюдая условия стерильности;

...материала в 2 раза, а на концентрирование спор в 5 раз;

позволяет проводить конц... рирование спор в широком диапазоне температуры (0 25°С);

дает возможность увеличить выход спор с 1 см^3 питательной среды в 2 раза;

позволяет получать жидкую суперконцентрированную вакцину.

ФОРМУЛА ИЗОБРЕТЕНИЯ

1. Способ изготовления вакцины против сибирской язвы животных, включающий культивирование штамма 55-ВНИИВВиМ в жидкой питательной среде, содержащей органический источник азота, до максимального образования спор и концентрирование споровой культуры с использованием вспомогательного вещества с последующим отстаиванием смеси и отделением осадка, отличающийся тем, что, с целью увеличения выхода количества спор с единицы питательной среды, сокращения трудоемкости способа, материальных затрат и времени на получение и концентрирование спорового материала, штамм 55-ВНИИВВиМ культивируют на питательной среде, содержащей дрожжевой экстракт сухой, пептон, калий фосфорнокислый двузамещенный, кальций хлористый, магний сернокислый, цинк сернокислый, медь сернокислую, железо сернокислое, аммоний сернокислый при следующем соотношении компонентов, мас.

Дрожжевой экстракт сухой 0,2 0,3

Пептон ферментативный сухой 0,2 0,3

Калий фосфорнокислый двузамещенный 0,04 0,06

Кальций хлористый 0,004 0,006

Магний сернокислый 0,03 0,05

Цинк сернокислый 0,0005 0,0015

Медь сернокислая 0,0005 0,0015

Железо сернокислое 0,00005 0,00015

Аммоний сернокислый 0,15 0,25

Вода деминерализованная (pH 7,2 ± 0,2) Остальное

2. Способ по п.1, отличающийся тем, что культивирование осуществляют в реакторе в течение 23 25 ч, из них первые 17 19 ч при аэрации, поддерживая скорость растворения кислорода в среде (5,5 ± 0,2) ммоль на 1 л среды в час.

3. Способ по п.1, отличающийся тем, что для концентрирования бактериальных спор в качестве вспомогательного вещества используют натриевую соль карбоксиметилцеллюлозы, которую вносят в суспензию до конечной концентрации 0,2 0,3% а отстаивание проводят при 0 25°С в течение 23 25 ч.

ИЗВЕЩЕНИЯ ОБ ИЗМЕНЕНИИ ПРАВОВОГО СТАТУСА

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Дата публикации бюллетеня	**2002.06.10**
Код изменения правового статуса	**MM4A - Досрочное прекращение действия патентов РФ из-за неуплаты в установленный срок пошлин за поддержание патента в силе**

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(73) Name of patent holder: All-Russian Scientific Research Institute of Veterinary Virology and Microbiology

(54) METHOD FOR PRODUCING A VACCINE AGAINST ANIMAL ANTHRAX

Use: biotechnology, microbiology, vaccine against animal anthrax. Essence of the invention: the vaccine strain 5-VNIIVViM is cultured in a liquid sporulation-growth medium containing yeast extract, peptone, potassium biphosphate, potassium chloride, zinc sulfate, copper sulfate, iron sulfate, ammonium sulfate and water (pH 7.2±0.2). Culturing of the strain is accomplished in a reactor over 23 to 25 hours, the first 17 to 19 hours during aeration, maintaining a rate of dissolution of oxygen in the medium of 5.5±0.2 mmol per liter of medium per hour. The sodium salt of carboxymethylcellulose is used to concentrate the spores, the salt being introduced to the suspension to a concentration of 0.2-0.3%, while precipitation is accomplished at a temperature of 0-25°C for 23 to 25 hours. Two dependent claims.

The invention pertains to microbiology, specifically biotechnology of vaccine preparations, and can be used in the production of a vaccine against anthrax.

The method of culturing bacteria of the species *B. anthracis* in quarter bottles on a dense nutrient sporulation medium containing edible yeast hydrolyzate as main component is used to produce the vaccine against anthrax [1].

The shortcoming of this method is the duration of the process for culturing the strain of *B. anthracis* (72 to 82 hours) and also the labor intensity, since workup of the spore material is accomplished in quarter bottles.

The closest technical solution chosen as prior art is the method for culturing the strain 55-VNIIVViM in a liquid nutrient medium using acid hydrolyzate of beef as nitrogen source. The method permits spore material to be produced in 48 hours containing 100 to 300 million vital spores of the strain 55-VNIIVViM [2].

The main drawbacks of this method include the low yield of spore material from 1 cm^3 of nutrient medium (100-300 million spores per 1 cm^3), use of meat, a valuable human food product, in the culture medium and also the duration of the process for culturing and producing the spores (2 days).

A method is known for concentration of bacterial spores by precipitation, using the auxiliary substance polyethyleneimine (Certificate of Authorship No. 1792969, cl. C 12 N 1/02, authors Bakulov, I. A. et al.). It permits concentration of bacterial spores in the suspension in 4 to 5 days.

The main drawbacks of this method include the duration of the concentration process (4 to 5 days) and also the formation of strong conglomerates of spores during precipitation. which are difficult to resuspend. The presence of spore conglomerates in the vaccine is inadmissible.

The purpose of the present invention is to increase the yield of the number of spores per unit of nutrient medium, reduce the labor intensity of the method, the material costs and time to produce a concentrate spore material for vaccine production.

The objective is achieved in that in the proposed method for producing the vaccine against anthrax culturing is accomplished in a reactor, using a liquid sporulation-growth medium with the following composition (by weight) developed by us and approved in the production of a vaccine:

Dry yeast extract 0.2-0.3
Dry enzymatic peptone 0.2-0.3
Potassium biphosphate 0.04-0.06
Potassium chloride 0.004-0.006
Magnesium sulfate 0.03-0.05
Zinc sulfate 0.0005-0.0015
Copper sulfate 0.0005-0.0015
Iron sulfate 0:00005-0.00015
Ammonium sulfate 0.15-0.25
Demineralized water (pH 7.2±0.2) remainder

Moreover, different culturing conditions are used. In the first 18 hours the culture of strain 55-VNIIVViM is aerated with air by bubbling, the aeration level is 5.3-5.7 mmol of dissolved oxygen per liter of medium in 1 hour, in which 95 to 100% of the grown bacterial cells form spores. Aeration is then stopped and the culture held for 6 hours to completion of spore formation and complete lysis of the vegetative material.

A reduction in the time for concentration of the spore material is achieved by using the sodium salt of carboxymethylcellulose (NaCMC) as auxiliary in an optimal concentration of 0.2-0.3%. Moreover, precipitation of the spores is accomplished directly in the reactor at a temperature of 0 to 25°C over 23 to 25 hours.

The culturing method was worked out on a 5 L "Bromma" fermenter (LKB Co., Sweden) and reproduced in a 250 L reactor. This method can be accomplished in vessels for culturing of different volume. For this purpose it is necessary to determine the mass transfer characteristics of the employed vessels relative to oxygen. This can be done by the sulfite method.

Example 1. Determination of mass transfer relative to oxygen in a 250 L reactor, growing of the culture of strain 55-VNIIVViM and production of spores.

The rate of dissolution of oxygen (mmol O_2 per hour) during supply of oxygen through a bubbler in a reactor in an amount of 2.5 dm^3/L water per minute or 40 dm^3/160 L water per minute (first measurement); 5 dm^3/L of water per minute or 80 dm^3/160 L per minute (second measurement) and 7.5 dm^3/L of water per minute or 120 dm^3/160 L water per minute (third measurement) is determined according to the improved sulfite method in a 250-liter reactor containing 160 L distilled water.

The obtained numerical values of the three measurements are used to plot a graph that reflects the aeration level (mmol O_2/L per hour) versus rate of air feed to the reactor (dm^3/L per minute).

Growing of a culture of strain 55-VNIIVViM and production of spores.

160 L sporulation-growth medium is prepared in a reactor (250 L) according to the specification (see above). The reagents are dissolved in the same sequence in which they are entered. The pH of the medium is set at 7.2±0.2 by adding 25% potassium or sodium hydroxide solution. The medium is sterilized at 134°C for 1 hour and cooled to 30-35°C.

The seed material, a spore suspension of strain 55-VNIIVViM in an amount of $1.5\text{-}3.0 \cdot 10^{12}$ vital spores, which amounts to 1 to $2 \cdot 10^7$ spores per cm^3 of medium is poured into the reactor with nutrient medium through the sampling device. All the seed material should be contained in a volume of 2 to 5 L.

An incubation temperature of 37°C is established, compressed air is fed into the inoculated nutrient medium. The rate of air feed is determined according to the mass transfer graph. It should ensure an aeration level of 5.5 mmol O_2/L per hour. It is cultured for 18 hours. It is incubated for the next 6 hours without aeration.

The culture of vaccine strain 55-VNIIVViM grown under these conditions consists of mature vital spores, the amount of which is 350 to 500 million in 1 cm^3.

An increase in the aeration level above 5.7 mmol O_2/L per hour has an adverse effect on growth and spore formation of the culture of strain of 55-VNIIVViM: "the harvest" of spores from 1 cm^3 of nutrient medium diminishes by 30 to 40% and spore formation occurs only in 70 to 80% of the grown vegetative cells.

A reduction in the aeration level of 5.3 mmol O_2/L per hour causes a sharp reduction in the percentage of spore formation. Only 50 to 60% of the vegetative cells sporulate. The yield of spores from 1 cm^3 of nutrient medium diminishes by 45 to 50%.

Example 2. Precipitation of spores in a culture of anthrax vaccine of strain 55-VNIIVViM directly in the reactor.

16 L of a 2% NaCMC solution sterilized at 121°C for 1 hour and cooled to 40 to 50°C is poured into a reactor through the sampling device, the reactor containing 160 L spore culture of strain 55-VNIIVViM with a spore concentration of 350 to 500 million/cm^3. The contents of the reactor are mixed and left at rest for 20 to 24 hours. After this time the supernatant is carefully decanted and the precipitate carefully mixed and poured into a separate vessel, for example a 20-liter glass bottle. The precipitate in an amount of 10 to 15 L contains 4 to 6 billion vital spores/cm^3, is easily resuspended and used to produce a vaccine against animal anthrax. Under these conditions 10- to 15-fold concentration of the spore material occurs.

When NaCMC is added to the spore culture in a final concentration of more than 0.2%, the rate of precipitation of the spores is not increased.

When NaCMC is added to the spore culture in an amount of 0.10 to 0.15%, precipitation of the spores occurs slowly over 10 to 12 hours. A change in temperature from 0 to 25°C does not affect the rate of precipitation of spores.

Glycerol is added to the super concentrated spore material to a final concentration of 30%. The super concentrated liquid vaccine obtained as a result from strain 55-VNIIVViM containing 50 to 300 doses in a volume of 1 to 5 mL is poured into vials and sealed without vacuum.

Use of the proposed method for producing a vaccine from strain 55-VNIIVViM in comparison with the existing methods ensures the following advantages:

It permits production of larger volumes of spores of strain 55-VNIIVViM in reactors and their concentration, observing conditions of sterility;

It reduces the time to produce the spore material by a factor of 2 and the time to concentrate the spores by a factor of 5;

It permits concentration of spores over a wide temperature range (0-25°C);

It offers a possibility of increasing the yield of spores from 1 cm^3 of nutrient medium by a factor of 2;

It permits a liquid super concentrated vaccine to be prepared.

CLAIMS

1. Method for preparation of a vaccine against animal anthrax, including culturing of strain 55-VNIIVViM in a liquid nutrient medium containing an organic nitrogen source, to maximum spore formation and concentration of the spore culture using an auxiliary substance with subsequent precipitation of the mixture and separation of the precipitate, characterized by the fact that, in order to increase the yield of the number of spores per unit nutrient medium, to reduce the labor intensity of the method, the material costs and time to prepare and concentrate the spore material, strain 55-VNIIVViM is cultured on the nutrient medium containing dry yeast extract, peptone, potassium biphosphate, potassium chloride, magnesium sulfate, zinc sulfate, copper sulfate, iron sulfate, ammonium sulfate with the following ratio of components, by weight,

Dry yeast extract 0.2-0.3
Dry enzymatic peptone 0.2-0.3
Potassium biphosphate 0.04-0.06
Potassium chloride 0.004-0.006
Magnesium sulfate 0.03-0.05
Zinc sulfate 0.0005-0.0015
Copper sulfate 0.0005-0.0015
Iron sulfate 0.00005-0.00015
Ammonium sulfate 0.15-0.25
Demineralized water (pH 7.2±0.2) remainder

2. Method according to Claim 1, characterized by the fact that culturing is accomplished in the reactor for 23 to 25 hours, the first 17 to 19 hours during aeration, maintaining a rate of oxygen dissolution in the medium of (5.5±0.2) mmol per 1 L of medium per hour.

3. Method according to Claim 1, characterized by the fact that, for concentration of the bacterial spores, the sodium salt of carboxymethylcellulose is used as auxiliary substance, introduced to the suspension to a final concentration of 0.2-0.3% and precipitation is carried out at 0 to 25°C over 23 to 25 hours.

NOTIFICATION OF CHANGE IN LEGAL STATUS

Bulletin number	16/2002
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Code of change in legal status	MM4A – Immediate termination of effect of patents of the Russian Federation owing to nonpayment of the fees to maintain the patent in force in the established period

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In re: Conkle et al.
Serial No.: 09/701,760
Filing Date: April 19, 2004
For: *Method for Purification, Recovery, and Sporulation of Cysts and Oocysts*
MBSS Ref.: 5175-135 KAM/sb

Respectfully submitted,
MYERS BIGEL SIBLEY & SAJOVEC